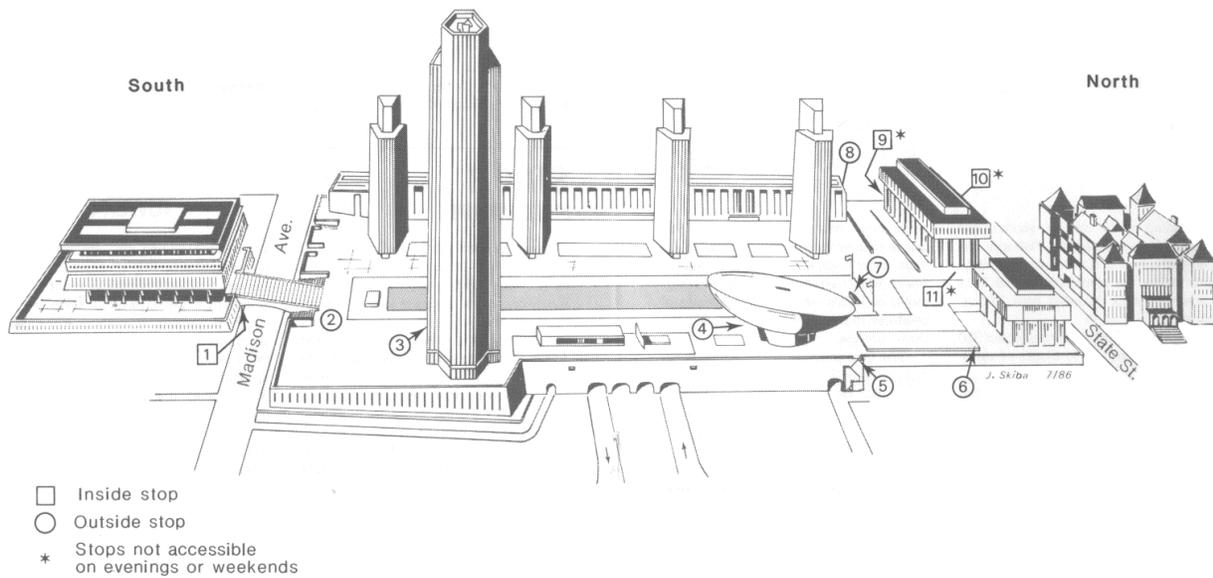


BUILDING STONES OF THE EMPIRE STATE PLAZA

A Walking Tour

GOVERNOR NELSON A. ROCKEFELLER EMPIRE STATE PLAZA
ALBANY, NEW YORK



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Adapted from NYSM Educational Leaflet 27

If you can spare an hour of your time, you can take a walking tour and examine some of the most attractive and interesting rocks from three continents, spanning a period of time in the Earth's history going back more than one billion years. This can be done within the 98-acre Governor Nelson A. Rockefeller Empire State Plaza at Albany, New York.

The eleven buildings that make up the Empire State Plaza are concrete and steel structures faced with more than 600,000 cubic feet of building stones from the three major rock classes – **igneous**, **sedimentary** and **metamorphic**.

Igneous rocks are formed from hot liquids, such as molten lava, that have cooled and become solid. Stones mined from the large igneous rock ranges of both North and South America are found in the Plaza.

The most common varieties of **sedimentary rocks** form from earth particles that are carried and deposited by water, wind or ice. A second type of sedimentary rock develops chemically from minerals once dissolved in water. The Plaza's sedimentary rocks consist of sandstone deposited on the floor of a vast sea that covered much of New York State some 350 million years ago, and limestone deposited from mineral waters in Italy.

Igneous or sedimentary rocks that are buried deep inside the earth and subjected to heat and pressure over a long period of time may change in appearance or mineral content. The new rocks that result are called **metamorphic rocks**. Metamorphic rocks are the most abundant building stones used in the Plaza. They consist of light-colored marble quarried from the ancient folded mountain chains along the east coast of the United States, dark green serpentinite from the Greek islands of the Aegean Sea and grey meta- anorthosite from the Adirondack Mountains of New York.

STOP 1

LOBBY OF THE CULTURAL EDUCATION CENTER

Start your tour in the main lobby of the Cultural Education Center on Madison Avenue. This building, on the south end of the Plaza, is directly opposite the State Capitol. The walls of the lobby are covered with a creamy white, fine-grained marble quarried at Sylacauga, Alabama. Marble forms when heat and pressure are applied to limestone, usually during tectonic (mountain building) processes.

This unusual marble has a distinctive V-shaped pattern. Its dark bands of accessory minerals were formed and folded into the limestone as it changed to marble. Because these dark minerals tend to disintegrate when exposed to the atmosphere this stone is suitable only for interior use.

In the Empire State Plaza, Alabama marble appears only in the Cultural Education Center lobby and in some of the interior hallways of this building. Among the oldest marbles in the Plaza, this beautiful stone dates back some 500 million years, to a time in the earth's history known as the Cambrian period.

Leave the Cultural Education Center through the main entrance, cross Madison Avenue, and walk up the stairs on the right to the outdoor Plaza level. Keep to the left as you go up and stop at the top of the stairs.

STOP 2

THE MAIN PLATFORM

You are now standing on the roof of one of the largest buildings in the world—the Main Platform. This building has over 3.8 million square feet of the Empire State Building. It houses offices, laboratories, shops, restaurants, a bus terminal and several banks. Lower levels of the five-story structure provide parking for 3,000 vehicles. The Main Platform is supported by more than 25,000 steel piles driven an average depth of 70 feet through soft lake clay to secure a firm footing in the area's dense glacial soil.

As you look around the Plaza, all the buildings appear to be covered with the same white marble. But a closer inspection reveals the differences. The Tower Building to your right and the four tall Agency Buildings on your left are faced with Vermont Pearl Marble. The Cultural Education Center, Legislative Office Building, Swan Street Building and the Justice Building are faced with varieties of white Georgia Marble.

Here at Stop 2, where the low wall extends from the Cultural Education Center, you can get a closer look at this building's crystalline, white Georgia Cherokee Marble, the coarsest-grained marble used in the Plaza. This stone is from the Murphy Marble Formation at Tate, Georgia, and is quarried in deep, underground mines. Georgia Marble is also used in the Lincoln Memorial and many other buildings in Washington, D.C. The Murphy Marble was formed about 500 million years ago during the Cambrian period.

Vermont Pearl Marble, a much finer-grained stone, has the greenish hue of the other minerals it contains. You can get a closer look at Vermont Pearl Marble at the next stop. But first, walk a few steps to see the darker grey stone that makes up the large, wider stairway and seating area extending to the terrace of the Cultural Education Center. This metamorphic rock is meta-anorthosite quarried in the Adirondack Mountains at Jay, New York.

This hard, durable stone is used in areas of the Plaza subject to heavy wear. This is the oldest stone in the Empire State Plaza. It was formed well over a billion years ago, during the Precambrian period, long before any life forms existed on Earth. Found in only a few places on Earth, anorthosite is one of the primary rocks making up the highlands of the Moon.

Notice that this stone is made up of a mixture of light and dark mineral grains. The most abundant mineral in meta-anorthosite is light-colored feldspar, a very common earth mineral. You will also see pyroxene, a very dark grey mineral, and a few red garnet crystals. This stone appears much darker in nature than it does here as a finished facing stone. The flame treatment used to process the rock actually lightens the feldspar and produces this medium grey color.

The rock is often called Lake Placid Blue Granite, but geologists do not consider it granite. Stonecutters refer to almost any crystalline rock as granite. Geologists, however, define granite as crystalline rock of igneous origin, having the mineral quartz as one of its components. This rock does not contain quartz. While the anorthosite originated as an igneous rock, it has been subsequently metamorphosed and hence is properly called “meta-anorthosite”.

Leave Stop 2 and walk down the brick roadway to the main entrance of the Mayor Erastus Corning II Tower Building.

STOP 3

THE MAYOR ERASTUS CORNING II TOWER BUILDING

Now you can get a close look at the Vermont Pearl Marble covering the 44-story Tower Building and the four Agency Buildings on the opposite side of the reflecting pools. You can see now how much the greenish-white Vermont Pearl Marble differs from the Georgia Cherokee Marble seen at Stop 2. Layers and folds of dark green minerals run through this fine-grained white marble. These layers can be seen best by looking at the edge of a block (for example, at the corner of the building). By sawing the blocks of stone at a slight angle to the layering, stonecutters create a flowing pattern. This Vermont Pearl Marble was quarried from the Vermont Marble Company’s West Rutland Mine in the Green Mountains. It is about 470 million years old. Over 300,000 cubic feet of Vermont Pearl Marble was used to construct the Plaza, enough so that when the Plaza was finished, the depleted West Rutland marble quarries were shut down.

As you continue north along the brick roadway, see if you can identify other areas where Vermont Pearl Marble is used.

STOP 4

THE PERFORMING ARTS CENTER

You are now standing on the brick walkway near the flagpole in front of the Performing Arts Center. Popularly called “The Egg,” this oddly shaped structure is the only building on the Plaza faced with concrete. The concrete was blended from portland cement produced from limestone in the Hudson and Mohawk Valleys, and from sand and gravel aggregates excavated in Albany and Rensselaer Counties. The red concrete sidewalks surrounding the Performing Arts Center are made from gravel crushed from Monkton quartzite bedrock quarried in Burlington, Vermont. Quartzite is a very hard rock and is very suitable for walking surfaces. The bricks of the main roadway were produced from shale bedrock quarried near Waynesburgh, Ohio; the large circular design in the center of the brick roadway is composed of meta-anorthosite from Jay, NY.

Now walk to the east, across the Monkton quartzite, past the Performing Arts Center to Stop 5, at the top of the stairs leading to the Vietnam Memorial.

STOP 5

STAIRS TO VIETMAN MEMORIAL

Standing on the stairway you can see the exterior wall of the Main Platform. It is faced with Llenroc (Cornell spelled backward) Stone, the commercial name for a sedimentary rock quarried near Ithaca, New York.

During the Devonian Period (about 350 million years ago), these blocks of sandstone and siltstone were sand and mud deposits on the bottom of a huge sea that covered much of the northeastern United States. Since most of these blocks are split along their natural bedding planes, you can see ripple marks, worm burrows, and many

other original depositional features. The careful observer sometimes finds fragments of fossils which are the remains of creatures that lived in the sea during the Devonian Age.

You can examine these depositional features more closely as you continue to walk north on the Monkton quartzite. If you look to your right, you can see blocks of Llenroc Stone on your way to Stop 6.

STOP 6

NORTHEAST CORNER OF THE PLAZA LEVEL

You are on the northeast corner of the Plaza level overlooking the Vietnam Memorial Garden. The Justice Building is in front of you, the Legislative Office Building at your left and the Swan Street building at your far left. They are all faced with a variety of Georgia Marble known as Georgia Cherokee Mélange. The dark grey streaks of this marble distinguish it from the Cultural Education Center's lighter Georgia Cherokee Marble.

On your right, you can see the Plaza's neighbor, the New York Telephone Company building. The lower fifteen feet of that building are faced with pink granite from New England, while the upper portion is a light grey Indiana Limestone.

STOP 7

DEDICATION MONUMENT

You are now at the north end of the Plaza. Between the two steel flagpoles stands the Dedication Monument, made of the exotic Uba Tuba Granite, a highly polished dark brown igneous rock quarried in Brazil. You are standing on the dark grey blue tones Vermont Marble called West Rutland Marble. It covers most of the area surrounding the reflecting pools.

Walk west on the brick road to Swan Street.

STOP 8

SWAN STREET BUILDING, NORTHWEST CORNER

Stop 8 is the northwest corner of the Swan Street Building. On June 21, 1965, Governor Nelson Rockefeller dedicated the 7,500-pound block of white granite (quarried near Cortland, New Hampshire) used as the cornerstone of the South Mall, subsequently renamed the Empire State Plaza. Although all the Plaza buildings are faced with marble (except the concrete Performing Arts Building), this granite block ties the Plaza symbolically to the State Capitol Building, which is constructed of white granite from Maine. A document box, containing items placed during the 1965 ceremony, is sealed within the cornerstone.

Walk north on Swan Street and into the Legislative Office Building. Before entering, pause and look closely at the coarse-grained marble. This is another example of Georgia Cherokee Mélange. Can you identify the stone covering the walkways around the Legislative Office Building? **Notice: Entering the Legislative Office Building requires passing through a security check point.**

STOP 9

LEGISLATIVE OFFICE BUILDING

You are now in the entrance lobby on the Swan Street side of the Legislative Office Building, where you can see two more varieties of Vermont Marble. The walls are veneered with Vermont Pavonazzo Marble, a white stone with lacy, pastel green clouds cut by dark green veins. One of the rarest varieties of Vermont Marble, it was quarried from a layer only 3 to 9 inches thick at the West Rutland Mines.

The floors are a Montclair Danby Marble, mined from deep within Dorset Mountain at Danby, Vermont. Now enter the hallway and walk east through the halls, and descent the stairs into the Main Well area of the Legislative Office Building.

STOP 10

THE MAIN WELL OF THE LEGISLATIVE OFFICE BUILDING

The Vermont Pavonazzo Marble on the walls of the Main Well contrasts with the Verde Tinos, a dark green metamorphic rock called serpentine, found on the floor and columns. Imported from Tinos, a Greek Island in the Aegean Sea, this serpentine is a rare rock found at the core of some ancient mountain chains. The far wall of the Well is covered with a dark grey, rough cut Adirondack meta-anorthosite, popularly referred to as Cold Spring Granite. Exit the Legislative Office Building to the main concourse of the Plaza.

STOP 11

NORTH CONCOURSE

This grand indoor space is the Plaza North Concourse. Many of the interior walls of the Concourse are faced with Roman Travertine, a tan limestone with many small, open holes or “vugs.” Travertine is sedimentary rock deposited from calcium-rich groundwater flows and mineral springs like those found at Saratoga Springs. This rock was mined from the ancient quarries in the Bagni de Tivoli area of Italy, near Rome. The same kind of stone was used to construct the Roman Coliseum and St. Peter’s Cathedral. Many of the small, open vugs in the rock contain calcite crystals.

The last stone you will examine on the walking tour is really an artificial stone. The floor of the Concourse is made of terrazzo, a man-made stone composed of mortar and crushed limestone. The shine of ground and polished surface rivals that of many of the Plaza’s natural stones.

The Empire State Plaza took more than 10 years to build and cost approximately 2 billion dollars to complete. About 24,000,000 cubic feet of concrete and 600,000 cubic feet of stone went into the buildings. Today you have had an opportunity to identify all of the major stone varieties in the Plaza. If you are interested in learning more about

building stones or about the construction of the Empire State Plaza and its history, the following books and articles are suggested and available through your local library:

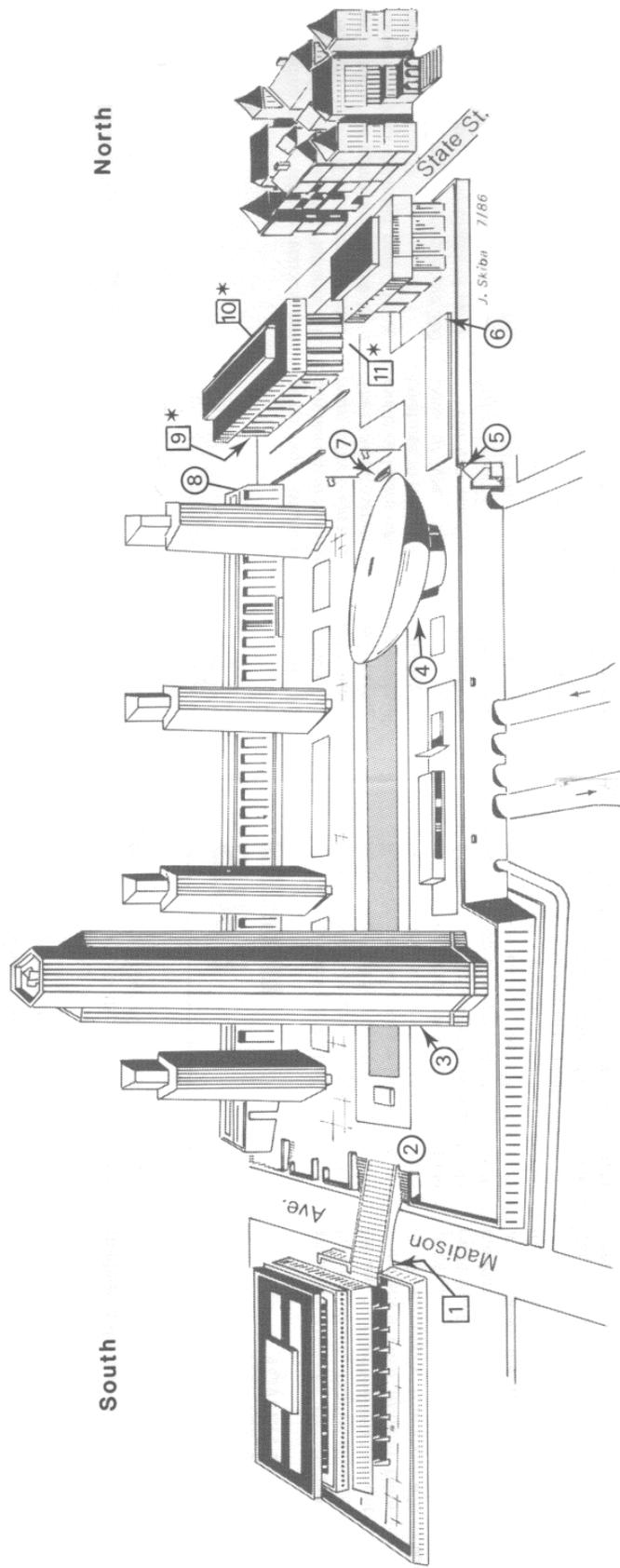
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Roseberry, C. R. *Capitol Story*. (Albany): New York State Office of General Services, 1982.

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- Inside stop
- Outside stop
- * Stops not accessible on evenings or weekends